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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,424	03/25/2004	Ryoichi Kaku	119245	6949

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EXAMINER	
PARK, EDWARD	
ART UNIT	**PAPER NUMBER**
2624	

MAIL DATE	DELIVERY MODE
07/18/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/808,424	KAKU ET AL.	
	Examiner	Art Unit	
	EDWARD PARK	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *18 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/18/08 has been entered.

Specification

2. In response to applicant's amendment of the title, the previous title objection is withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1, 4, 6, 8, 10, 13, 15, 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mukoyama et al (US 6,831,659 B1) in view of Bothcy (C Magazine; "Speed-up Techniques and thinking Routine for 3D games found Source Code of a 3D game "Doom"").

Regarding **claim 1**, Mukoyama teaches an image generation method for generating an image, the method comprising:

storing object data in an object data storage section (Mukoyama: figure 1, numeral 102);

disposing a plurality of objects in an object space, based on the object data stored in the object data storage section (Mukoyama: figure 14);

controlling a virtual camera (Mukoyama: col. 8, lines 5-27);

disposing in the object space a model object including a plurality of part objects each of which has a projection shape, each of the part objects having a projecting portion projecting from a display surface on which an image is drawn (Mukoyama: figure 15; col. 14, lines 35-65; fig. 16, col. 14, 66-67, col. 15, lines 1-14; each display element P is established on the tree object that has a vector v1 that is projected towards the point of view VP, wherein display element P has a image such as a leaf cluster); and rotating each of the part objects based on rotational information of the virtual camera so that the display surface of each of the part objects is directed toward the virtual camera (Mukoyama: figure 16). Mukoyama does not teach generating an image viewed form the virtual camera in the object space while performing hidden surface removal processing.

Bothcy teaches generating an image viewed form the virtual camera in the object space while performing hidden surface removal processing ("Billboarding": Bothcy: pgs. 3-4).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama reference to utilize hidden surface removal processing as suggested by Bothcy, to "achieve high-speed processing" (Bothcy: pgs. 3-4).

Regarding **claim 4**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the Y-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 6**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about an X-axis which is perpendicular to the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the X-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 8**, Mukoyama teaches wherein part objects include a first part object and a second part object, the first and second part objects being adjacent each other (Mukoyama: figure 14), the method further comprising: disposing the first and second part objects so as to overlap each other in a view image viewed from the virtual camera (Mukoyama: figure 14) or

intersect each other even when the virtual camera rotates 360 degrees about a given coordinate axis.

Regarding **claim 10**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with a program for generating an image, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) of the methods of claim 1 (the claim is rejected under the same combinations, teachings, and motivation as claim 1).

Regarding **claim 13**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 10, the program for generating an image, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 4 (the claim is rejected under the same combinations, teachings, and motivation as claim 4).

Regarding **claim 15**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 10, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs,

etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 6 (the claim is rejected under the same combinations, teachings, and motivation as claim 6).

Regarding **claim 17**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory with the program as defined in claim 10, (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27). The claim is rejected under the same combinations, teachings, and motivation as claim 8.

5. **Claims 2, 3, 5, 7, 9, 11, 12, 14, 16, 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Mukoyama et al (US 6,831,659 B1) with Bothcy (C Magazine; "Speed-up Techniques and thinking Routine for 3D games found Source Code of a 3D game "Doom"") as applied to claim 1, and further in view of Nakagawa (US 2002/0135603 A1).

Regarding **claim 2**, Mukoyama with Bothcy combination discloses all elements as mentioned above in claim 1. Mukoyama with Bothcy combination does not teach storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section; mapping the Z texture stored in the texture storage section on each of the objects; and mapping on each of the part objects the Z texture for setting bump shapes on the display surface by pixel unit.

Nakagawa teaches storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section (Nakagawa: paragraph [0139]); mapping the Z texture stored in the texture storage section on each of the objects (Nakagawa: paragraph [0139]); and mapping on

each of the part objects the Z texture for setting bump shapes on the display surface by pixel unit (Nakagawa: figure 3).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama with Bothcy combination to utilize texture as suggested by Nakagawa, to "[reduce] processing time" (Nakagawa: paragraph [0006]-[0007]).

Regarding **claim 3**, Mukoyama teaches an image generation method for generating an image comprising:

storing object data in an object data storage section (Mukoyama: figure 1, numeral 102);

disposing a plurality of objects in an object space, based on the object data stored in the object data storage section (Mukoyama: figure 14);

generating the plurality of objects as three-dimensional objects including Z-texture values (see fig. 15, numeral P, fig. 16, col. 14, lines 66-67, col. 15, lines 1-14; each display element P can be rotate in any manner about the three rotation axes X, Y, and Z that intersect at the center point in terms of display element P that is defined in a body coordinate system in a world coordinate system, it is positioned by rotating it a determined rotation angle about each of the axes X, Y, and Z, which configures so that it can be oriented and can be directionally controlled according to the position of the point of view);

controlling a virtual camera (Mukoyama: col. 8, lines 5-27)

disposing a model object having a plurality of part objects in the object space (Mukoyama: figure 15);

rotating each of the part objects based on rotational information of the virtual camera so that a display surface of each of the part objects on which an image is drawn is directed toward

the virtual camera (Mukoyama: figure 16). Mukoyama does not teach storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section; mapping the Z texture stored in the texture storage section on each of the objects; generating an image viewed from the virtual camera in the object space while performing hidden surface removal processing; and mapping on each of the part objects the Z texture for forming a virtual projection shape on the display surface of the part objects by pixel unit.

Bothcy teaches generating an image viewed form the virtual camera in the object space while performing hidden surface removal processing ("Billboarding": Bothcy: pgs. 3-4).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama reference to utilize hidden surface removal processing as suggested by Bothcy, to "achieve high-speed processing" (Bothcy: pgs. 3-4).

Nakagawa teaches storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section (Nakagawa: paragraph [0139]); and mapping the Z texture stored in the texture storage section on each of the objects (Nakagawa: paragraph [0139]), and mapping on each of the part objects the Z texture for forming a virtual projection shape on the display surface of the part objects by pixel unit (Nakagawa: figure 3; paragraph [0104] generate the image of the tree by mapping a plate-like polygon 310 onto a texture 320 for the tree which is a two dimensional representation of a three dimensional object).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama with Bothcy combination to utilize texture as suggested by Nakagawa, to "[reduce] processing time" (Nakagawa: paragraph [0006]-[0007]).

Regarding **claim 5**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the Y-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 7**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about an X-axis which is perpendicular to the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the X-axis which is perpendicular to the Y-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 9**, Mukoyama teaches wherein part objects include a first part object and a second part object, the first and second part objects being adjacent each other (Mukoyama: figure 14), the method further comprising: disposing the first and second part objects so as to overlap each other in a view image viewed from the virtual camera (Mukoyama: figure 14) or intersect each other even when the virtual camera rotates 360 degrees about a given coordinate axis.

Regarding **claim 11**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 10, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 2 (the claim is rejected under the same combinations, teachings, and motivation as claim 2).

Regarding **claim 12**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with a program for generating an image, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 3 (the claim is rejected under the same combinations, teachings, and motivation as claim 3).

Regarding **claim 14**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 12, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 5 (the claim is rejected under the same combinations, teachings, and motivation as claim 5).

Regarding **claim 16**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 12, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 7 (the claim is rejected under the same combinations, teachings, and motivation as claim 7).

Regarding **claim 18**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 12, (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27). The claim is rejected under the same combinations, teachings, and motivation as claim 9.

Response to Arguments

6. Applicant's arguments filed 6/18/08, in regards to **claims 1 and 10** have been fully considered but they are not persuasive. Applicant argues that Mukoyama and Botchy do not teach or suggest "each of he part objects having a projecting portion projecting from a display surface on which an image is drawn" (see arguments, pg. 11, third paragraph). This argument is not considered persuasive because the Mukoyama reference does disclose the projecting portion projecting from a display surface which is equivalent to a display element P that is established on the tree object that has a vector v1 that is projected towards the point of view VP which is shown

on fig. 15, letter P. Examiner notes that the amendment by the applicant to alter "formed on" to "projecting from" (see claim 1 and 10) does not sufficiently change the scope and limitation of the claims.

Applicant argues that that the two dimensional virtual project shapes do not actually project from the display surface on which they are drawn (see arguments, pg. 11, fourth paragraph) and therefore do not actually project from the display surface on which they are drawn. This argument is not considered persuasive since the term "projecting portion" is interpreted as the common definition of "projecting portion" which as follows, the representation on a flat surface of a three-dimensional figure or curved line. The applicant appears to be interpreting projecting as the display surface having a portion that has an object that is three dimensional, when the claim limitation is not interpreted and does not have to be interpreted as the applicant is having it be interpreted. With the examiner's interpretation, the projecting portion projecting from a display surface on which an image is drawn is met by the Mukoyama reference in fig. 15, 16, numeral P, PT, as mentioned above in the arguments and the rejection of claims 1 and 10.

Applicant argues that the Botchy reference does not remedy Mukoyama's deficiencies (see arguments, pg. 11, last paragraph) by only applying the reference for its alleged teaching of generating an image while performing hidden surface removal. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Regarding **claims 3 and 12**, applicant argues that Mukoyama, Botchy, and Nakagawa do not teach generating the plurality of objects as thee-dimensional objects including Z-texture values (see arguments, pg. 12, third paragraph). This argument is not considered persuasive since the claim limitation has been newly added to claims 3 and 12 and are met by the Mukoyama reference, in fig. 15, numeral P, fig. 16, col. 14, lines 66-67, col. 15, lines 1-14, which disclose display element P that can rotate in any manner about the three rotation axes X, Y, and Z which is equivalent generating the plurality of objects as three-dimensional including Z-texture values. Z-texture values are interpreted as Z values that define the shape, orientation, or size in three dimensions.

Applicant further argues that Mukoyama and Botchy do not teach storing Z texture and Nakagawa does not remedy the deficiency (see arguments, pg. 12, fourth paragraph). This argument is not considered persuasive since the newly added claim limitations were not presented previously and therefore, the grounds of the rejection have been modified and can be seen above in the arguments and rejection of claims 3 and 12.

Furthermore, applicant argues that Nakagawa does not teach generating the plurality of objects as three-dimensional objects including Z-texture values (see arguments, fourth paragraph). This argument is not considered persuasive since it is the Mukoyama reference that discloses this newly added limitation and can be seen above in the rejection of claims 3 and 12.

Regarding **claims 2, 4-9, 11 and 13-18**, applicant argues that the claims are allowable due to the dependency from independent claims 1, 3, 10, and 12 respectively (see arguments, pg. 12, last paragraph). This argument is not considered persuasive since the independent claims 1,

3, 10, 12 still stand rejected and the arguments can be seen above along with the rejection of the respective claims.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWARD PARK whose telephone number is (571)270-1576. The examiner can normally be reached on M-F 10:30 - 20:00, (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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